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Sociodemographics, clinical features, and psychiatric comorbidities of patients with psychogenic nonepileptic seizures: Experience at a specialized epilepsy center in Turkey

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ABSTRACT

Patients with psychogenic nonepileptic seizures (PNESs) or pseudoseizures are known to have psychiatric comorbidities. In the present retrospective analysis, we examined the sociodemographics, clinical characteristics, and psychiatric diagnoses of patients with PNESs. Our aim is to demonstrate the contribution of the consulting psychiatrists to the presumed psychiatric diagnoses of the neurologists. We used data from long-term video EEG monitoring (LVEM) performed at a specialized epilepsy center in Turkey. The study group comprised 67 patients (mean age: 30 years, 75% female) diagnosed with PNESs following LVEM of approximately 5 days' duration. Two hundred thirty-three episodes were recorded. Most of the patients experienced a PNES on the first day. All of the patients were taking antiepileptic drugs (AEDs) at the time of admission; 56.7% were taking antidepressant (AD) drugs. All of the PNES patients were diagnosed with conversion disorder by both the neurologists and the psychiatrists. Most of the PNES patients were using multiple AEDs. Cooperation between neurologists and psychiatrists and ongoing education for both neurologists and psychiatrists about PNES are needed in appropriate diagnosing and management of patients with PNES.

1. Introduction

Epilepsy is a common neurological condition that affects 0.5–1% of the general population. Patients with psychogenic nonepileptic seizures (PNESs) have a presumed or known psychological cause and clinically resemble epileptic seizures. PNESs are associated with disruptive behavioral and emotional changes but there is no measurable alteration in electrical brain activity.

Patients with PNESs represent 15–30% of those referred to epilepsy centers for refractory seizures, and they account for 10–20% of all long-term video EEG monitoring (LVEM).[1] LVEM yields data on EEG rhythms during the seizure and is regarded as the gold standard for diagnosing PNESs.[2,3]

A number of physical and biological factors may predispose patients to the development of PNESs. Female sex, and younger age, have all been reported to be associated with PNESs in the literature. Some studies reported low-schooling in patients with PNESs.[4–7] Patients who experience PNESs have also been found to have a higher incidence of a history of trauma and posttraumatic stress disorder.[8,9]

Detailed analyses have identified different types of motor manifestations in many patients with PNESs.[10] One such manifestation is the so-called swooning attack, which is a nonconvulsive event where the patient swoons and then lies still and appears unresponsive.[11]

Psychiatric comorbidities such as personality disorders, depression, and antisocial behavior are common in patients with PNES.[7,12,13]

Some previous studies have examined Turkish patients with PNESs.[14–16] However, these studies either only included female patients or did not assess psychiatric comorbidities.

In the present retrospective analysis, we examined the sociodemographics, clinical characteristics, and psychiatric diagnoses of

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patients with PNESs. Our aim was to demonstrate the contribution of the consulting psychiatrists to the presumed psychiatric diagnoses of the neurologists.

2. Materials and methods

We conducted a retrospective analysis of 440 patients with refractory epilepsy or indeterminate diagnoses (whether or not epileptic) who underwent LVEM between 2000 and 2008 in the LVEM unit of the Neurology Department at the Uludag University Medical Faculty. We included all patients admitted to our epilepsy outpatient clinic with refractory epilepsy or diagnostic difficulties. Sixty-seven of the patients were diagnosed with PNESs by a team comprising an experienced epileptologist, three neurologists, and two psychiatrists. Ethical approval for the study was obtained from the regional ethics and research committee.

We systematically recorded demographic and clinical variables including age; gender; educational and occupational status; past neuropsychiatric diagnoses; previous drug use; results of neurological, neuroradiological, and neuropsychiatric evaluation; and clinical signs of PNESs.

A PNES event was defined by an absence of EEG changes in association with behavioral manifestations and correspondence of the clinical phenomena with a previous event witnessed by a family member or friend.[1,2]

PNES events were categorized using the 4-scale classification scheme of Griffith et al.: catatonic, major motor, minor motor, and subjective.[10]

The patients participated in semistructured clinical interviews with the consulting psychiatrists. Psychiatric diagnoses were based on the DSM-IV-TR criteria of the American Psychiatric Association.[17] Six of the 67 patients refused psychiatric assessment.

Statistical analysis was performed with SPSS for Windows version 13. The normal distribution of the variables was tested by the Shapiro–Wilk test. Subgroup analysis was performed with the Kruskal–Wallis test. An X^2 test or Fisher's exact test was used for the categorical data. Significance was established at $P < 0.05$.

3. Results

Two hundred thirty-three episodes in 67 subjects aged between 16 and 65 years (mean age: 30 years; female: 50; male: 17) were reviewed. The sociodemographic characteristics of the patients are shown in Table 1.

Table 1
Characteristics of PNES patients ($n = 67$).

Sociodemographic characteristics	*n* (%)
Education	
Illiterate	4 (6%)
Primary education	32 (48%)
Secondary education	21 (31%)
Higher education	10 (15%)
Marital status	
Single	34 (51%)
Married	33 (49%)
Occupation	
Unemployed	53 (79%)
Employed	14 (21%)
AEDs before LVEM	
Polytheraphy	37 (55%)
Monotheraphy	30 (45%)
ADs before LVEM	
Yes	38 (57%)
No	29 (43%)

AED, antiepileptic drug; AD, antidepressant LVEM, long-term video-EEG monitoring

Table 2
PNES classification of patients ($n = 67$).

Seizure type	*n* (%)
Catatonic	9 (13%)
Major motor	18 (27%)
Minor motor	21 (31%)
Subjective	19 (29%)

All of the patients had undergone LVEM for approximately 5 days (2–8 days). The mean number of seizures per patient was 3.5 (range: 1–14). The mean duration prior to the observation of the first episode was 22.6 h (range: 25 min–112 h). The mean duration of individual episodes in all patients was 10.5 min (range: 4 s–40 min). Thirty-seven patients (55%) experienced their first episode on the first day of LVEM; the first episode was recorded on the second, third, and fourth days in 20 (30%), 7 (10%), and three patients (5%), respectively. Minor motor and subjective PNESs, followed by major motor PNESs, were responsible for 87% of PNESs (Table 2). Six of the patients (9%) had concurrent epilepsy. Seizure types were as follows: complex partial epilepsy ($n = 4$), generalized tonic–clonic ($n = 2$).

Neuroradiological findings in 60 of the patients were normal. Two of the six patients with epilepsy had right mesial temporal sclerosis (MTS) and one had bilateral MTS. The remaining three patients had abnormal magnetic resonance imaging (MRI) findings (left parietoccipital encephalomalesia, falxian hemangioma, multiple demyelinating lesions).

The patients took a number of antiepileptic drugs (AEDs) including carbamazepine (65%), sodium valproate (46%), oxcarbazepine (28%), levetiracetam (18%), lamotrigine (12.5%), and phenytoin (12.5%).

A total of 56.7% ($n = 38$) of patients had a history of antidepressant (AD) drug use at the time of admission. AD drugs had been prescribed to 38 patients, but 20 reported that they did not use them regularly.

The psychiatric diagnoses of the 61 patients are shown in Table 3. All of the patients were classified as having axis I, axis II, or both disturbances. The most frequent somatoform disorder was conversion disorder. Thirty-seven patients were diagnosed with comorbid axis I disturbance. Eleven patients were diagnosed with comorbid axis II disturbance. Out of 11 patients with comorbid axis II disturbance, 5 had mild mental retardation (an IQ level ranging between 55 and 70) and 6 had personality disorders (PDs) (3 of them were borderline and 3 of them were histrionic). All of the PD patients had experienced depressive episodes in their past medical history. Three of the borderline PD patients and one histrionic PD patient had attempted suicide in the past.

Thirty-one percent ($n = 19$) of the patients reported that they had first-degree relatives who had psychiatric disorders such as depression and conversion disorder. A total of 70% ($n = 43$) of the patients reported a traumatic life event such as migration, divorce, sexual abuse, or unexpected loss of a loved one as the initiator of their seizures.

Table 3
Psychiatric disorders of 61 patients based on DSM-IV-TR criteria.

Psychiatric disorders	*n* (valid%)
Conversion disorder only (axis I)	13 (21%)
Conversion disorder plus	
Major depression (axis I)	19 (31%)
Generalized anxiety disorder (axis I)	9 (15%)
Dysthymia (axis I)	6 (10%)
Personality disorder (axis II)	6 (10%)
Mental retardation (axis II)	5 (8%)
Psychotic disorder (axis I)	3 (5%)

4. Discussion

The patients in our study were predominantly female (75%), congruent with other reports in the literature of a female predominance (3:1) in PNES series.[4–6]

Overall, there were no significant gender differences in most of the PNES episodes we recorded. Our data do not appear to support a male–female difference in the expression of PNESs, with men and women equally likely to show aggression during episodes.[18] This may be the result of one of the limitations of the present study which is the differences in the size of the groups according to sex, making it difficult to compare between a group of 75% women and 25% men and state a male-female difference in expression of PNES.

In contrast with findings reported by Galimberti et al.,[7] we found that the age and education level of the patients did not seem to influence the clinical expression of PNESs. Most of the patients in our study were poorly educated stay-at-home housewives. This demographic group is more common in Turkey than in Western cultures. Our study population may, therefore, not be heterogeneous enough to determine whether sociocultural characteristics have an impact on seizure type. Rates of employment among patients with PNESs are low.[19] In the present study, 79% of PNES patients were unemployed and 21% were employed. Housewives (84%) were included in the unemployed category.

Parra et al. reported that 96.2% of PNES patients had a spontaneous PNES in the first 48 h of LVEM.[20] We recorded the first event in the first 48 h of LVEM in 85% of patients; the other 15% experienced spontaneous events during the third and fourth days of LVEM. The variation may be attributable to cultural differences between the study populations.

Nine percent of the patients in our study had PNES concurrent with epilepsy; this finding contrasts with previous reports of a prevalence of 10–37% of epilepsy in patients who experience PNESs.[1,4] Most of the PNESs occurred spontaneously within the first day of LVEM in our study, congruent with previous findings.[7,20]

High rates of concomitant psychopathology in patients with PNES are frequently reported.[12,13] In our study, all of the patients were diagnosed with either axis I, axis II, or both disturbances based on DSM-IV-TR criteria. All of the PNES patients were diagnosed with conversion disorder by both the neurologists and the psychiatrists. Eighteen percent of patients ($n = 11$) were diagnosed with comorbid axis II disturbance based on psychiatric evaluation alone.

Forty-three of the patients reported antecedent psychological trauma prior to experiencing PNESs. It is possible that the patients were unwilling to discuss psychological trauma during their first visits to the clinic. The inclusion of follow-up sessions could have enabled the patients to discuss sensitive issues at a later stage. Arrangements should be made for follow up during psychiatric evaluations.

Most of the PNES patients in the study group were using multiple AEDs, were subject to their toxic effects, and were accepted as ‘‘resistant’’ epileptic patients when they were admitted to our center. Thus, LVEM was a milestone in their diagnosis and treatment strategy. Early recognition of PNESs in patients with refractory epilepsy is not only important in providing comprehensive treatment but also in preventing unnecessary toxicity and side effects of AEDs. To help prevent prolonged exposure to AEDs, physicians should carefully consider whether such treatment is appropriate, especially when the diagnosis of epilepsy is uncertain.

Cooperation between neurologists and psychiatrists can also aid PNES and AED management. Unfortunately, cooperation does not occur in many centers. Our study showed that most of the PNES patients (91%) saw a neurologist initially and unnecessarily became AED users. Only six patients were first examined by a psychiatrist and referred to a neurologist for differential diagnosis of their seizures. This finding highlights the need for cooperation between the two disciplines.

Twenty PNES patients in the study group who had been prescribed ADs did not use them. Various factors contribute to nonuse, including lack of information about side effects and the need for a psychotherapeutic approach and follow up. Regular visits to a psychiatrist may improve AD use in terms of dose, duration, and adherence to treatment.

Several studies have reported a decrease in the severity and frequency of seizures with treatment rather than the cessation of seizures.[21,22] Unfortunately, the frequency of the seizures did not decrease in the patients in our study. An inadequate treatment approach may explain this finding. PNESs may also become a defense mechanism in some patients as a result of socioeconomic and sociocultural factors.

Our investigation clearly has some methodological limitations, particularly the small number of patients in the study group and the retrospective nature of the study design. We were unable to compare PNES patients with PNES plus epilepsy. Despite these limitations, our results demonstrate the need for cooperation between neurologists and psychiatrists in diagnosing patients with PNES. They also add to current knowledge on the geographical and cultural variability of PNES.

Conflicts of interest statement

The authors report no conflicts of interests

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